PHYSICS

AAKASH INSTITUTE ENGLISH

Mock Test 32: PHYSICS

Example

1. Lenz's law is consistent with law of conservation of

A. Current

B. EMF

C. Charge

D. Energy

Answer: D

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2. A coil of insulate copper wire is connected to a galvanometer. What will happen if a bar magnet is (i) pushed into the coil, (ii)

withdrawn from inside the coil, (iii) held stationary inside the coil ?

A. If ϕ=0, E mast be zero

B. If ϕ not equal to 0, E cannot be zero

C. If E is not zero, ϕ may or may not be zero

D. All of these

Answer: C

3. When is the force experienced by a current-carrying conductor placed in a magnetic field largest?

A. Increase

B. Decrease

C. Remains same

D. First increase then decrease

Answer: C

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4. The magnetic flux ϕ (in weber) in a closed circuit of resistance 10Ω varies with time t (in secnod) according to equation $\phi = 6t^2 - 5t + 1$. The magnitude of induced current at $t = 0.25$ s is

A. 1.2 A

B. 0.8 A

C. 0.6 A

D. 0.2 A

Answer: D

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5. A coil of metal wire is kept stationary in a non-uniform magnetic field. An e.m.f. Is induced in the coil.

A. An emf is is induced in the coil

B. A current is induced in the coil

C. Neither emf nor current is induced

D. Both (1) and (2)

Answer: C

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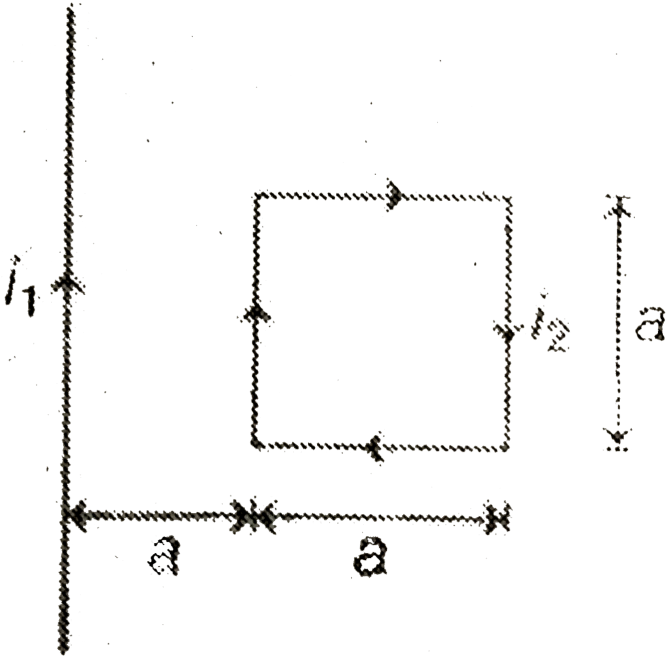
6. A current carrying squre loop is placed near an infinitely long current carrying wire as shown in figure . The loop torque acting on

the loop is



A. $\frac{\mu_0 il}{4\pi}\ln\left(\frac{b}{a}\right)$

B. $\frac{\mu_0 i}{2\pi}\ln\left(\frac{a}{b}\right)$

C. $\frac{\mu_0 i}{2\pi l}\ln\left(\frac{a+b}{a}\right)$

D. $\frac{\mu_0 il}{2\pi}\ln\left(\frac{a+b}{a}\right)$

Answer: D

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7. Which of the following is not an application of eddy currents?

A. Induction furnace

B. Galvanometer damping

C. Crystallography

D. Speedometer of automobiles

Answer: C

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8. The network shown in figure is a part of a complex network. When the potential difference between points B and A$(V_B - V_A)$ is $15V$, then the rate of change of current is

A. 10^4 A/S and increasing

B. 2×10^5 A/S and increasing

C. $5 \times 10^2 \frac{A}{S}$ and decreasing

D. $2 \times 10^3 \frac{A}{S}$ and decreasing

Answer: D

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9. Eddy current are produce when

A. A metal plate is kept in varying magnetic field

B. A metal plate is kept in the steady magnetic field

C. A circular coil is placed in a steady magnetic field

D. Through a circular coil constant current is passed through it

Answer: A

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10. The total charge induced in a conducting loop when it is moved in magnetic field depends on

A. The rate of change of magnetic flux

B. Initial magnetic flux only

C. The total change in magnetic flux

D. Final magnetic flux only

Answer: C

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11. Two circular coils can be arranged in any of three situations shown in the figure. Their mutual inductance will be (a)  (b`) (##AAK_MCP_32_NEET_PHY_E32_012_Q02.png" width="80%"> (c) 

A. Maximum in situation (a)

B. Maximum in situation (b)

C. Maximum in situation (c)

D. The same in all situations

Answer: A

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12. Two pure inductors each of self-inductance L are connected in parallel but are well separated from each other. The total inductance is

A. $\frac{L_1 L_2}{L_1 + L_2}$

B. $L_1 + L_2$

C. $(L_1 + L_2)\left(\frac{L_1}{L_2}\right)$

D. $(L_1 + L_2)\left(\frac{L_2}{L_1}\right)$

Answer: A

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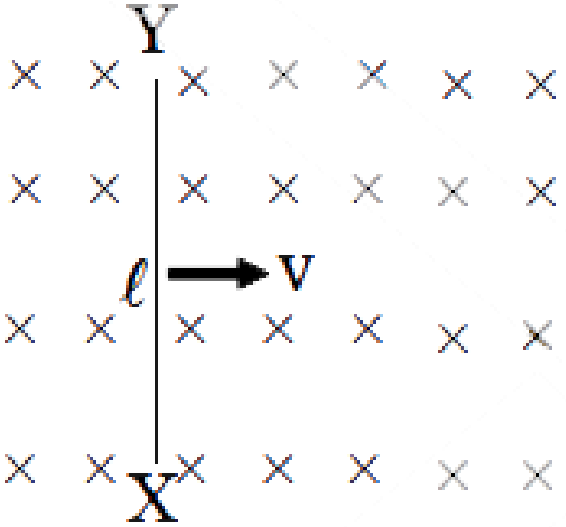
13. A small conducting rod of length l, moves with a uniform velocity v in a uniform

magnetic field B as shown in fig __



A. Then the end X of the rod becomes positively charged

B. The end Y of rod becomes positively charged

C. the entire rod is unevenly charged

D. the rod becomes hot due to joule heating

Answer: C

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14. Draw the pattern of magnetic field lines around a current carrying strainght conductor. How does the strength of the magnetic field produced change.

(i) with the distance from the conductor ?

(ii) with increase in current in a conductor ?

A. 2 J/S

B. 1J/S

C. 16 J/S

D. 4 J/S

Answer: C

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15. When a current of 4 A through primary give rise to a flux of magnitude 1.35 Wb through secondary. What is the coefficient off mutual induction (M)?

A. 2.96 H

B. 5.4 H

C. 0.34 H

D. Zero

Answer: C

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16. A circular coil of radius R is moving in a magnetic field B with a velocity v as shown in the figure. The emf induced across the diametrically opposite points X and Y is 

A. BvR

B. $2BvR$

C. $Bv\pi R$

D. Zero

Answer: B

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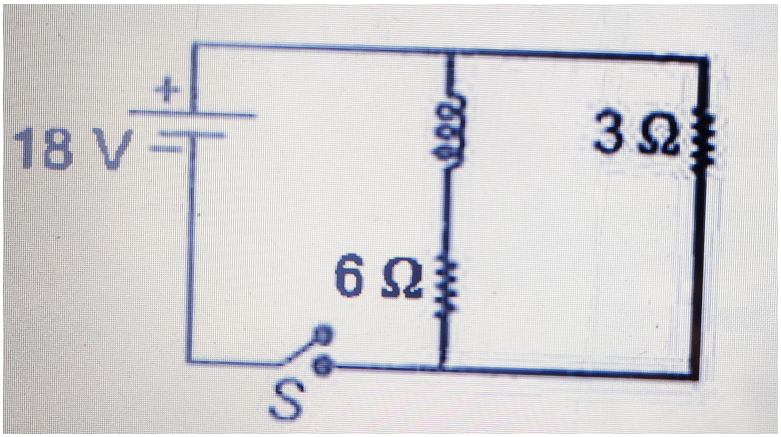
17. In the following circuit the value of current i through the battery just after switch S is closed is



A. 3A

B. 6A

C. 2A

D. 9A

Answer: B

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18. The mutual inductance of two coil of radii a and b (a<<

A. $\frac{\mu_0 \pi a^2}{2b}$

B. $\frac{\mu_0 \pi b^2}{2a}$

C. $\frac{\mu_0 \pi a^2}{b}$

D. zero

Answer: A

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19. Two different coils of self inductance L 1 and L 2 are placed close to each other so that the effective flux in one coil is completely linked with other. If M is the mutual

inductance between them, then

A. $L_1 + L_2$

B. $L_1 + L_2 - 2M$

C. $L_1 + L_2 + M$

D. $L_1 + L_2 + 2M$

Answer: D

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20. The figure shows a metal rod (PQ), which makes contact and complete the circuit. The circuit is perpendicular to the magnetic field with $B = 1\text{T}$. If the resistance is 2Ω , then force required to move the rod and indicated with a constant speed of $2\frac{m}{s}$ is

A. 4N

B. 2×10^{-2}

C. 1N

D. 2N

Answer: C

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21. An electric generator converts :

A. Electrical energy into mechanical energy

B. Mechanical energy into electrical energy

C. Magnetic energy into mechanical energy

D. Mechanical energy into magnetic energy

Answer: B

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